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CENTRAL INTELLIGENCE AGENCY

REPORT NO.

## INFORMATION REPORT

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25X1A

COUNTRY USSR

DATE DISTR. 8 Sep 1950

SUBJECT Test of Soviet Annular Ball Bearing

NO. OF PAGES 2

PLACE  
ACQUIRED

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NO. OF ENCLS.  
(LISTED BELOW)DATE  
ACQUIREDSUPPLEMENT TO  
REPORT NO.

25X1X

DATE OF

below on a double row, internal self aligning ball bearing of Soviet Manufacture believed to have been produced at an unknown date in the number two bearing factory at Moscow, USSR. The bearing was acquired in Finland during 1950 and is believed to have been used in an automobile of Soviet manufacture. Because the bearing is very similar to the SKF #2206, it has been compared dimensionally with two examples of the American SKF bearing of that designation. The marking of the Soviet bearing is 2 GLZ.

1. The results of comparative measurements against comparable SKF bearings of American manufacture are as follows:

| a. <u>Surface Roughness (Microinches)</u> | <u>2GLZ</u> | <u>No. 1</u> | <u>No. 2</u> |
|---|-------------|--------------|--------------|
| Outside Diameter-Outer Ring               | 12.5        | 12.0         | 13.0         |
| " " Inner Ring                            | 35.0        | 37.0         | 36.0         |
| Outer surface-ball race                   | 19.0        | 13.5         | 19.0         |
| Bore of inner ring                        | 28.0        | 20.0         | 19.5         |
| Balls (range by several readings)         | 1.8 - 2.0   | .9-1.1       | 1.85 -1.0    |

- 1/ Balls of the 2GLZ were somewhat scuffed and have small rust spots. The higher surface roughness readings are attributed to these imperfections.

| b. <u>Wavometer Readings<br/>of Inner Races</u> | <u>2GLZ</u> | <u>No. 1</u> | <u>No. 2</u> |
|---|-------------|--------------|--------------|
| One race - High Band                            | 12.0        | 14.0         | 21.0         |
| One race - Low Band                             | 4.0         | 2.4          | 2.2          |
| Other race - High Band                          | 12.0        | 13.0         | 16.0         |
| Other race - Low Band                           | 4.5         | 2.2          | 1.7          |

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| STATE | <input checked="" type="checkbox"/> | NAVY | <input checked="" type="checkbox"/> | NSRB |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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## c. Dimensional Measurements

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|                                    |         |         |         |
|------------------------------------|---------|---------|---------|
| Outside Diameter (Standard 2.4409) |         |         |         |
| Ranges from <u>2/</u>              |         |         |         |
| to.                                | 2.4409  | 2.4407  | 2.4406  |
|                                    | 2.4408  | 2.4406  | 2.4404  |
| Bore Diameter (Standard 1.1811)    |         |         |         |
| Ranges from <u>2/</u>              |         |         |         |
| to.                                | 1.1810  | 1.1808  | 1.1809  |
|                                    | 1.1808  | 1.1807  | 1.1808  |
| Inner Races - Eccentricity         |         |         |         |
| Ranges from <u>2/</u>              |         |         |         |
| to.                                | .00015  | .00005  | .00015  |
|                                    | .00065  | .0002   | .0002   |
| Ball Size                          | 5/16    | 5/16    | 5/16    |
| Ball Size (variation)              | .0001   | .00007  | .00005  |
| Roundness of Balls                 | .000015 | .000010 | .000010 |
| Number of Balls in the Bearing     | 28      | 28      | 28      |

## d. Hardness Test

|            |           |       |                     |
|------------|-----------|-------|---------------------|
| Outer face | 63 1/2 RC | 63 RC | 63 1/2 RC <u>3/</u> |
| Inner face | 64 RC     | 62 RC | 63 RC               |

## e. Motor Test at 1800 RPM

|                   |    |    |    |
|-------------------|----|----|----|
| Sound in Decibels | 69 | 64 | 66 |
|-------------------|----|----|----|

2/ Where two readings are given they indicate the range, since absolute figures cannot always be specified when working with such small units.

3/ RC is an abbreviation of "Rockwell 'C' hardness number."

## 2. The evaluation of the Soviet 2GLZ bearing is as follows:

- a. The Bearing meets Annular Bearing Engineer's Committee (ABEC) standards.
- b. The bearing compares very well in all respects with the American examples with which it was measured.

## 3. A breakdown test under load and a chemical analysis of bearing 2GLZ are in progress. The results of this activity will be reported in an early report.

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